

AMENDMENTS TO THE CLAIMS:

The listing of claims shown below will replace all prior versions, and listings of claims in the Application:

1. (Currently Amended) A circuit for a device adapted to receive a conductive solution including charged biological materials comprising:

an array of unit cells arranged in rows and columns, the array of unit cells disposed on a chip for receiving a conductive solution including charged biological materials, wherein each unit cell comprises:

a first column select transistor, the first column select transistor being adapted for control by a column selector,

a first row select transistor, the first row select transistor being adapted for control by a row selector, the first select transistors being connected in series to each other and between a node and a first supply,

an output connected to the node,

a second column select transistor, the second column select transistor being adapted for control by a column selector,

a second row select transistor, the second row select transistor being adapted for control by a row selector, the second select transistors being connected in series to each other and between the node and a second supply, wherein the channel length of the column select transistors is larger than the channel length of the row select transistors, and

a return electrode.

2. (Previously Presented) The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the output is directly connected to the node.

3. (Previously Presented) The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the row select transistors and the column select transistors are field effect transistors.

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Previously Presented) The circuit of claim 1 for control of an output current in an active biological control reaction system further including a first test transistor spanning the first supply and the node.

8. (Previously Presented) The circuit of claim 7 for control of an output current in an active biological control reaction system wherein the first test transistor is adapted for control by a test signal.

9. (Previously Presented) The circuit of claim 8 for control of an output current in an active biological control reaction system further including a second test transistor spanning the second supply and the node.

10. (Previously Presented) The circuit of claim 9 for control of an output current in an active biological control reaction system wherein the second test transistor is adapted for control by a test signal.

11. (Previously Presented) The circuit of claim 1 for control of an output

current in an active biological control reaction system wherein the first supply is Vcc.

12. (Previously Presented) The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the second supply is ground.

13. (Previously Presented) The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the first and second column select transistors are controlled under application of a gate voltage from a column shift register memory.

14. (Previously Presented) The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the first and second row select transistors are controlled under application of a gate voltage from a row shift register memory.

15. (Cancelled)

16. (Cancelled)

17. (Previously Presented) The circuit of claim 1 wherein the return electrode is another unit cell.

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Previously Presented) The circuit of claim 1 wherein each unit cell has a permeation layer.

22. (Previously Presented) The circuit of claim 1 wherein a first row selector controls the first row select transistor and a second row selector controls the second row

select transistor.

23. (Previously Presented) The circuit of claim 1 wherein a first column selector controls the first column select transistor and a second column selector controls the second column select transistor.

24. (Previously Presented) The circuit of claim 1 wherein the first row select transistor is selected by a first row selector and the second row select transistor is selected by a second row selector.

25. (Previously Presented) The circuit of claim 1 wherein the first column select transistor is selected by a first column selector and the second column select transistor is selected by a second column selector.

26. (New) A circuit for a device adapted to receive a conductive solution including charged biological materials comprising:

an array of unit cells arranged in rows and columns, the array of unit cells disposed on a chip for receiving a conductive solution including charged biological materials, wherein each unit cell has a permeation layer and comprises:

a first column select transistor, the first column select transistor being adapted for control by a column selector,

a first row select transistor, the first row select transistor being adapted for control by a row selector, the first select transistors being connected in series to each other and between a node and a first supply,

an output connected to the node,

a second column select transistor, the second column select transistor being

adapted for control by a column selector,

a second row select transistor, the second row select transistor being adapted for control by a row selector, the second select transistors being connected in series to each other and between the node and a second supply, and

a return electrode.

27. (New) The circuit of claim 26 for control of an output current in an active biological control reaction system wherein the output is directly connected to the node.

28. (New) The circuit of claim 26 for control of an output current in an active biological control reaction system wherein the row select transistors and the column select transistors are field effect transistors.

29. (New) The circuit of claim 26 for control of an output current in an active biological control reaction system further including a first test transistor spanning the first supply and the node.

30. (New) The circuit of claim 29 for control of an output current in an active biological control reaction system wherein the first test transistor is adapted for control by a test signal.

31. (New) The circuit of claim 30 for control of an output current in an active biological control reaction system further including a second test transistor spanning the second supply and the node.

32. (New) The circuit of claim 31 for control of an output current in an active biological control reaction system wherein the second test transistor is adapted for

control by a test signal.

33. (New) The circuit of claim 26 for control of an output current in an active biological control reaction system wherein the first supply is Vcc.

34. (New) The circuit of claim 26 for control of an output current in an active biological control reaction system wherein the second supply is ground.

35. (New) The circuit of claim 26 for control of an output current in an active biological control reaction system wherein the first and second column select transistors are controlled under application of a gate voltage from a column shift register memory.

36. (New) The circuit of claim 26 for control of an output current in an active biological control reaction system wherein the first and second row select transistors are controlled under application of a gate voltage from a row shift register memory.

37. (New) The circuit of claim 26 wherein the return electrode is another unit cell.

38. (New) The circuit of claim 26 wherein a first row selector controls the first row select transistor and a second row selector controls the second row select transistor.

39. (New) The circuit of claim 26 wherein a first column selector controls the first column select transistor and a second column selector controls the second column select transistor.

40. (New) The circuit of claim 26 wherein the first row select transistor is selected by a first row selector and the second row select transistor is selected by a second

row selector.

41. (New) The circuit of claim 26 wherein the first column select transistor is selected by a first column selector and the second column select transistor is selected by a second column selector.